# METHOD AND SYSTEM FOR MASKING USE FUNCTION OF HMI TERMINAL BY ACCESS LEVEL
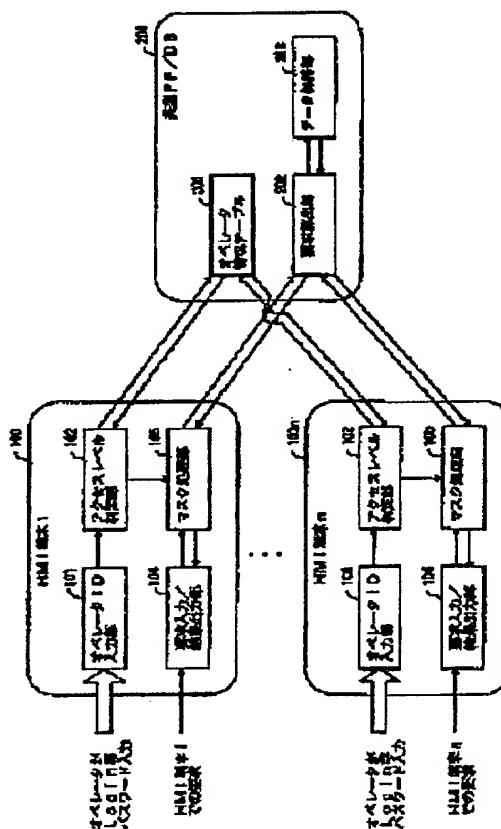
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Abstract of **JP9231173**

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# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NIPPON TELEGR & TELEPH CORP <NTT>
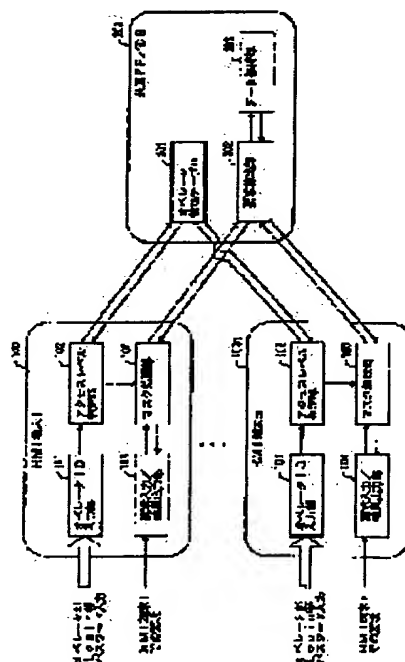
(72)Inventor : MASUI NOBUHIKO

(54) METHOD AND SYSTEM FOR MASKING USE FUNCTION OF HMI TERMINAL BY ACCESS LEVEL

(57)Abstract:

PROBLEM TO BE SOLVED: To improve the performance of the operability for an operator by referring to access level information and executing the masking processing of a function in an HMI terminal based on access level information for the respective operators.

SOLUTION: An operator ID input part 101 fetches inputted operator ID and a password and transfers the operator ID and the password to an access level judgment part 102. A mask processing part 105 receives operator ID and an access level, which are transferred from the access level judgment part 102, and holds them. When a request from the HMI terminal 100 itself is received through a request reception/return part 104, a request content is masked in accordance with the access level and it is transferred to common PF/DB 200. The request reception/return part 104 receives the request from the HMI terminal 100 by the operator, receives information on the request content sent from the masking processing part 105 and displays information on the request content to the HMI terminal 100.

LEGAL STATUS

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**\* NOTICES \***

## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the masking and the system of a use function of a HMI terminal by the access level, and relates to the masking and the system of a use function of a HMI terminal by the access level required for the limit of the operation function by an operator's access level in operation system (it is described as Following Ops) especially.
[0002] In detail, Ops is usually used by two or more operators from two or more HMI terminals currently installed in two or more locations. Therefore, it is important to carry out the mask of the limit of the operation function which can be used for every terminal, and to perform it according to the access level of the operator who actually operates a HMI terminal.
[0003] Moreover, after taking security into consideration for the reason, the masking and the system of a use function of a HMI terminal according an operator to the access level in which automatic authentication is possible are desired.
[0004]
[Description of the Prior Art] In order to restrict conventionally the operation function which can be used according to an operator's access level, a different program for operation for every terminal is distributed, an access level is distinguished at the terminal to be used, or the approach of specifying and using the function which an operator uses by himself is made into the employment management measure.
[0005]
[Problem(s) to be Solved by the Invention] However, there are the following problems in the above-mentioned conventional system.
(1) the setting unit of the mask for restricting a function assigns for every operator -- or it is not clear whether it assigns for every terminal.
[0006] (2) In order to decide the part which holds an operator's access level information on a system, the viewpoint of a maintenance and security is not taken into consideration.
This invention aims at offering the masking and the system of a use function of a HMI terminal by the access level which the mask of the limit of an available operation function is carry out , and can perform it at each terminal according to an operator access level , in order to have been made in view of the above-mentioned point , to solve the above-mentioned conventional trouble and to aim at improvement in the engine performance of an operator operability .
[0007]
[Means for Solving the Problem] The 1st invention arranges an operator's access level information to a platform side for every operator in the masking of the use function of the HMI terminal by the access level for restricting the operation function by an operator's access level in operation system, and an operator performs mask processing of the function of a HMI terminal with reference to access level information based on access level information for every operator at the time of the operation of a HMI terminal.
[0008] The 2nd invention performs mask processing of the function of a HMI terminal by the HMI terminal side based on the access level information acquired from the platform side to the demand

inputted by the operator. Drawing 1 is drawing for explaining the 1st principle of this invention.
[0009] The 3rd invention incorporates the operator ID and password which were entered, when an operator logs in to a HMI terminal (step 1). Transmit an operator ID to a platform side (step 2), and the access level corresponding to a password and an operator ID is acquired from a platform side (step 3). When the entered password is attested using the password acquired from the platform side (step 4) and an operator performs a HMI terminal handling Mask processing is performed based on reception (step 5) and an access level (step 6), and the contents of a demand are transmitted to a platform side (step 7). In a platform side Processing to the contents of a demand by which mask processing was carried out is performed (step 8), and the result is transmitted to a HMI terminal (step 9).
[0010] The 4th invention performs mask processing of the function of a HMI terminal by the platform side based on the access level information currently held at the platform side to the demand inputted by the operator. Drawing 2 is drawing for explaining the 2nd principle of this invention.
[0011] The 5th invention incorporates the operator ID and password which were entered, when an operator logs in to a HMI terminal (step 10). Transmit an operator ID to a platform side (step 11), and the access level corresponding to a password and an operator ID is acquired from a platform side (step 12). The entered password is attested using the password acquired from the platform side (step 13). When an access level is judged, an operator ID and an access level are transmitted to a platform (step 14) and an operator performs a HMI terminal handling Transmit the contents of a demand to reception and a platform (step 15), and it sets to a platform side. Mask processing according to an access level is performed to the contents of a demand (step 16), processing to the contents of a demand over which the mask was covered is performed (step 17), and the result is transmitted to a HMI terminal (step 18).
[0012] The 6th invention holds the hysteresis information about an operator ID and this write request, when the contents of a demand are write requests. The 7th invention is the mask system of the use function of the HMI terminal by the access level for restricting the operation function by an operator's access level in operation system, and has the platform which holds an operator's access level information for every operator, and the HMI terminal which performs mask processing of the function of a HMI terminal with reference to access level information based on the access level information for every operator at the time of the operation of the HMI terminal from an operator.
[0013] Drawing 3 is the 1st principle block diagram of this invention. The operator ID into which it was inputted when, as for the HMI terminal 10, an operator logged in to the HMI terminal 10 in the 8th invention, and an operator-ID acquisition means 11 to acquire a password, The authentication means 12 which attests an operator ID using the entered password and the password managed by the platform side, An access level judging means 13 to determine an operator's access level based on the access level information acquired from the platform side, The mask means 14 which carries out the mask of this demand according to the access level determined by the access level judging means 13 about the demand from an operator, The demand by which mask processing was carried out with the mask means is transmitted to a platform side. The information corresponding to the demand acquired from this platform is acquired, and it has an information presentation means 15 to show an operator. A platform 20 It has an access level maintenance means 21 to hold the access level information for every operator, and an information offer means 22 to perform processing corresponding to this demand based on the demand which was acquired from the HMI terminal 10 and by which mask processing was carried out, and to provide the HMI terminal 10 with the result.
[0014] In the 8th invention, the 9th invention includes a data-hold means to hold the hysteresis information about an operator ID and a write request, when data for a platform 20 to offer the data corresponding to the demand from the HMI terminal 10 and a demand are write requests.
[0015] The 10th invention is the mask system of the use function of the HMI terminal 10 by the access level for restricting the operation function by an operator's access level in operation system. The platform which holds an operator's access level information for every operator, and performs mask processing of the function of the HMI terminal 10 to the demand from the HMI terminal 10 based on this access level information, Authentication of an operator ID and a password is

performed, the demand from an operator is transmitted to a platform, and it has the HMI terminal 10 which acquires the information corresponding to a demand from this platform.

[0016] Drawing 4 is the 2nd principle block diagram of this invention. The operator ID into which it was inputted when, as for the HMI terminal 10, an operator logged in to the HMI terminal 10 in the 11th invention, and an operator-ID acquisition means 11 to acquire a password, The authentication means 12 which attests an operator ID using the entered password and the password managed by the platform side, An access level judging means 13 to determine an operator's access level based on the access level information acquired from the platform 20 side, Transmit the demand from an operator to a platform side, and the information corresponding to this demand is acquired from a platform. It has an information presentation means 15 to show this operator. A platform 20 An access level maintenance means 21 to hold the access level for every operator, A demand acquisition means 23 to acquire a demand from the HMI terminal 10, and the mask means 24 which carries out the mask of this demand acquired with the demand acquisition means according to the access level determined by the access level judging means of the HMI terminal 10, Processing corresponding to the demand by which mask processing was carried out with the mask means 24 is performed, and it is the HMI terminal 10 about the result. It has an information offer means 22 to provide.

[0017] The 12th invention includes a data-hold means to hold the hysteresis information about an operator ID and a write request, when data for a platform 20 to offer the data corresponding to the demand from a HMI terminal and a demand are write requests. Thus, the setting unit of an access level is not assigned for every HMI terminal, but this invention assigns it automatically for every operator. That is, it enables it to set up the function which can be used for every operator. Therefore, it is not necessary to distribute a different program for operation for every terminal like before.

[0018] An operator's access level information moreover, by making it hold to a platform [ not the HMI terminal 10 but ] (PF) side Although it is necessary to set up to all HMI terminals in case delivery of an operator's access level information is carried out when an operator's access level information is held at the HMI terminal 10 from the standpoint of maintenance nature By holding an operator's access level information to the PF side, unitary management of the access level information of the operator by the side of [ all ] a HMI terminal can be carried out by the PH side. Moreover, since it is not necessary to put an operator's access level information on each HMI terminal and the security device of the database of PF can be used from the standpoint of security nature, the operator treating a HMI terminal is unable to operate access level information, and it is possible to have secrecy nature.

[0019] As mentioned above, this invention becomes possible [ managing an operator's access level information in consideration of maintenance nature and security nature ] while being able to carry out the mask of the operation function according to an access level to an operator unit.

[0020]

[Embodiment of the Invention] Drawing 5 shows the mask structure of a system of the use function of the HMI terminal by the 1st access level of this invention. The 1st approach shown below performs the 1st mask processing in a HMI terminal.

[0021] The system shown in this drawing is two or more sets of 1001-100n of HMI terminals. It consists of one common PF/DB200. Each HMI terminal 100 consists of the output section 104 and the mask-processing section 105 the operator-ID input section 101, the access level judging section 102, and a demand input / result.

[0022] At the time of the verification for [ -- an operator logs in / which is a HMI terminal / -- ] carrying out use initiation, the operator-ID input section 101 incorporates the operator ID and password which were entered, and transmits the operator ID and password to the access level judging section 102. The access level judging section 102 receives and holds the operator ID transmitted from the operator-ID input section 101, and transmits an operator ID to common PF/DB200. Moreover, when the password and the access level were received from common PF/DB200, it attests using the password sent [ PF/DB200 ] and the password concerned is able to be attested correctly, an operator ID and an access level are transmitted to the mask-processing section 105.

[0023] The mask-processing section 105 will transmit to reception the operator ID and access level

which were transmitted from the access level judging section 102, it holds, and if the demand from HMI terminal 100 the very thing is received through demand reception / return section 104, it will transmit the contents of a demand over which covered the mask over the contents of a demand according to the access level, and the mask was covered to common PF/DB200.

[0024] Demand reception / return section 104 displays the information on the contents of a demand for the information on the contents of a demand that the demand from the HMI terminal 100 was sent from reception and the mask-processing section 105 in the operator on the reception HMI terminal 100. Common PF/DB200 has the operator managed table 201, the demand calculation section 202, and the data-hold section 203.

[0025] The operator managed table 201 extracts the password and access level of an operator ID which correspond the operator ID transmitted from the access level judging section 102 of the HMI terminal 100 out of reception and the operator management information currently held, and transmits the password and access level to the access level judging section 102 of the HMI terminal 100. In the operator managed table 201, operator management information is held, as shown in drawing 6 . Operator management information is an operator ID, a password, an access level, etc.

[0026] Carrying out applicable **** acquisition from the data-hold section 203 at the contents of a demand concerned, while the demand calculation section 202 transmits the information which is equivalent to reception and the contents of a demand concerned in the contents of a demand from the mask-processing section 105 of the HMI terminal 100 to the data-hold section 203, the data-hold section 203 transmitted to the mask-processing section 105 of a HMI terminal transmits the information demanded from the demand calculation section 202 to the demand calculation section 202. When the contents of a demand are informational writing, modification hysteresis including an operator ID is created and data are written in.

[0027] Drawing 7 is a sequence chart which shows actuation of the mask system of the use function of the HMI terminal by the 1st access level of this invention.

Step 101 The operator-ID input section 101 will acquire the operator ID and password which are entered by the operator concerned, if an operator performs use initiation actuation of logging in to the HMI terminal 100.

[0028] Step 102 The access level judging section 102 holds the operator ID (H) and password (H) which were acquired from the operator-ID input section 101 in work-piece memory.

Step 103 The access level judging section 102 transmits an operator ID (H) to the operator managed table 201 of common PF/DB200, in order to judge the access level for every operator.

[0029] Step 104 In the operator managed table 201, the operator ID (H) acquired from the access level judging section 102 is used as a key, and the access level of the operator concerned is extracted.

Step 105 The operator managed table 201 transmits a password (P) and the extracted access level to the access level judging section 102 of the HMI terminal 100.

[0030] Step 106 The access level judging section 102 of the HMI terminal 100 transmits an operator ID and an access level to the mask-processing section 105, when it attests using the password (H) currently held in work-piece memory, and the password (P) acquired from common PF/DB200 and is able to be attested with the right.

[0031] Step 107 Here, if a demand is inputted from the operator of the HMI terminal 100, as a result of a demand input, the output section 104 will acquire the demand concerned and will transmit the demand concerned to the mask-processing section 105. Thereby, the mask-processing section 105 carries out mask processing to the contents of a demand concerned.

[0032] Step 108 The mask-processing section 105 transmits the contents of a demand over which the mask was covered to the demand calculation section 202 of common PF/DB200.

Step 109 The demand calculation section 202 acquires the contents of a demand acquired from the mask-processing section 105, and requires the information equivalent to the contents of a demand of the data-hold section 203. Thereby, the data-hold section 203 extracts the information corresponding to the demand concerned, and returns it in the demand calculation section 202.

[0033] Step 110 The demand calculation section 202 acquires the information from the data-hold

section 203, computes the information on the contents of a demand, and transmits it to the mask-processing section 105.

Step 111 The mask-processing section 105 transmits the information on reception and the contents of a demand for the information on the contents of a demand acquired from the demand calculation section 202 to the output section 104 as a result of a demand input. Thereby, the output section 104 displays the information on the contents of a demand concerned on the HMI terminal 100 as a result of a demand input.

[0034] Thus, in the 1st above-mentioned system, since mask processing is performed on the level of the application within the HMI terminal 100, the structure can be given to the object library group of information acquisition, and a mask can be carried out comparatively easily. Drawing 8 shows the mask structure of a system of the use function of the HMI terminal by the 2nd access level of this invention. The 2nd system shown below performs mask processing to a common PF/DB side.

[0035] The system shown in this drawing consists of a HMI terminal 100 which consists of the output sections 104 the operator-ID input section 101, the access level judging section 102, the demand analysis section 103, and a demand input / result, the operator managed table 201 and the data-hold section 203, and a demand and the mask-processing section 204.

[0036] At the time of the verification for [ -- an operator logs in / which is a HMI terminal / -- ] carrying out use initiation, the operator-ID input section 101 of the HMI terminal 100 incorporates the operator ID and password which were entered, and transmits the operator ID and password to the access level judging section 102.

[0037] Reception and a password hold the operator ID and password which were transmitted from the operator-ID input section 101, and the access level judging section 102 transmits an operator ID to common PF/DB200. Moreover, when the password and the access level were received from common PF/DB200, it attests using the password sent [ PF/DB200 ] and the password concerned is able to be attested correctly, an operator ID and an access level are transmitted [ PF/DB200 ].

[0038] As a result of a demand input, when an operator requires at a HMI terminal, the output section 104 receives the demand concerned and transmits it to the demand analysis section 103. Moreover, the information concerned will be shown to an operator if the information corresponding to the demand from common PF/DB200 is acquired through the demand analysis section 103.

[0039] The demand analysis section 103 transmits the demand acquired from the output section 104 as a result of the demand input to common PF/DB200. Moreover, the information corresponding to the demand acquired from common PF/DB200 is transmitted to the output section 104 as a result of a demand input. Common PF/DB200 consists of an operator managed table 201, the data-hold section 203, and a demand and the mask-processing section 204.

[0040] The operator managed table 201 and the data-hold section 203 are the same as that of the configuration of above-mentioned drawing 5 . A demand and the mask-processing section 204 receive and hold the operator ID and access level which were acquired from the HMI terminal 100, and the information which is equivalent to reception and the contents of a demand which covered the mask over the contents of a demand according to the access level of the operator concerned in a demand of an operator from the demand analysis section 103 of the HMI terminal 100 is required of the data-hold section 203.

[0041] Next, actuation of the mask system of the use function of the HMI terminal by the 2nd access level is shown. Drawing 9 is a sequence chart which shows actuation of the mask system of the use function of the HMI terminal by the 2nd access level of this invention.

[0042] Step 201 The operator-ID input section 101 will acquire the operator ID and password which are entered by the operator concerned, if an operator performs use initiation actuation of logging in to the HMI terminal 100.

Step 202 The access level judging section 102 holds the operator ID (H) and password (H) which were acquired from the operator-ID input section 101 in work-piece memory.

[0043] Step 203 The access level judging section 102 transmits an operator ID (H) to the operator managed table 201 of common PF/DB200, in order to judge the access level for every operator.

Step 204 In the operator managed table 201, the operator ID acquired from the access level judging

section 102 is used as a key, and the access level of the operator concerned is extracted.

[0044] Step 205 The operator managed table 201 transmits a password (P) and the extracted access level to the access level judging section 102 of the HMI terminal 100.

Step 206 The access level judging section 102 of the HMI terminal 100 attests using the password (H) currently held in work-piece memory, and the password (P) acquired from common PF/DB200.

[0045] Step 207 In authentication, when it is able to attest with the right, an operator ID and an access level are transmitted to a demand and the mask-processing section 204 of common PF/DB200.

Step 208 A demand and the mask-processing section 204 of common PF/DB200 hold the operator ID and access level which were acquired.

[0046] Step 209 Here, if a demand is inputted from an operator, the output section 104 will transmit the contents of a demand concerned to a demand and the mask-processing section 204 of common PF/DB200 a demand input / as a result of the HMI terminal 100.

Step 210 A demand and the mask-processing section 204 of common PF/DB200 carry out mask processing to the contents of a demand, and publishes the demand of finishing [ mask processing ] in the data-hold section 203.

[0047] Step 211 A demand and the mask-processing section 204 acquire the data corresponding to the demand concerned from the data-hold section 203, and transmits them to the demand analysis section 103 of the HMI terminal 100.

Step 212 The demand analysis section 103 of the HMI terminal 100 transmits the acquired data to the output section 104 as a result of a demand input. Thereby, the output section 104 displays the information on the contents of a demand concerned on the HMI terminal 100 as a result of a demand input.

[0048] Thus, the mask system of the use function of the HMI terminal by the 2nd access level performs the part which covers a mask over the contents of a demand by the common PF/DB200 side. In the mask system of the use function of the HMI terminal by the 2nd access level, since it is possible to perform unitary management by the common PF/DB200 side concerned in the case of a maintenance in order to perform mask processing to a common PF/DB200 side with an application level, it is not necessary to carry out delivery to each HMI terminal 100. This is because it builds to common PF/DB200 by using object management application as a HMI information acquisition window and the information returned to the HMI terminal 100 is controlled according to an operator's access level information.

[0049]
[Example] Below, the example of this invention is explained with a drawing.
<< -- 1st example>> -- this example is explained based on the sequence chart of above-mentioned drawing 7 .

[0050] First, in this example, as shown in drawing 6 , let an operator's access levels be three level, a "privilege", general [ "general" ], and "a demonstration." The operator ID of the HMI terminal 100 is set to "23456789", and a password is set to "BY3CCZ4F." The contents shown in drawing 6 shall be beforehand registered into the operator managed table 201 of common PF/DB200.

[0051] (1) As for the operator-ID input section 101, "23456789" and a password "BY3CCZ4F" are entered as an operator ID from an operator (step 101).

(2) The access level judging section 102 holds the operator ID "23456789" and password "BY3CCZ4F" which were acquired from the operator-ID input section 101 in work-piece memory (step 102).

[0052] (3) The access level judging section 102 transmits an operator ID (23456789) to the operator managed table 201 of common PF/DB200 (step 103).

(4) In the operator managed table 201, use as a key the operator ID (23456789) acquired from the access level judging section 102, and acquire an access level "the object for general" (step 104).

[0053] (5) Common PF/DB200 transmits an access level "the object for general", and a password "BY3CCZ4F" to the access level judging section 102 of the HMI terminal 100.

(6) The access level judging section 102 compares the password (BY3CCZ4F) stored in work-piece

memory with the password "BY3CCZ4F" acquired from common PF/DB200. In this example, since it is the same, it attests with the right. This operator ID (23456789) and password (BY3CCZ4F) are transmitted to the mask-processing section 105 (step 106).

[0054] (7) From the operator of the HMI terminal 100 "to the list of the full lists of an actual complaint"
If the demand to say is inputted, as a result of a demand input, the output section 104 will acquire the demand concerned and will perform mask processing of the demand concerned. Since the access level of the operator concerned is "general" as mask processing is shown in drawing 6 , mask processing serves as "a list list of the complaints which an operator takes charge of", as shown in drawing 10 , and it is limited to the range which the operator concerned takes charge of (step 107).

[0055] (8) The mask-processing section 105 transmits the contents of a demand "a list list of the complaints which an operator takes charge of" over which the mask was covered to the demand calculation section 202 of common PF/DB200 (step 108).
(9) The demand calculation section 202 extracts the data of the list list corresponding to the demand concerned from the data-hold section 203, and returns them in the demand calculation section 202 (step 109).

[0056] (10) The demand calculation section 202 acquires the data of a list list, and transmits them to the mask-processing section 105 (step 110).
(11) The mask-processing section 105 transmits the data (list list) corresponding to the contents of a demand to the output section 104 as a result of reception and a demand input (step 111).

[0057] (12) Thereby, the output section 104 outputs the list concerned to output equipment, such as a display, as a result of a demand input.
Thus, in this example, the data corresponding to the contents of a demand by which mask processing was carried out to the HMI terminal 100 side can acquire from a common PF/DB200 side.

[0058] In addition, in the above-mentioned example, although an operator's access level explained the "general" example, when an operator's access level is a "privilege", mask processing is not performed but offer of the list of the full lists of an actual complaint serves as the contents of a demand in the example of drawing 10 . Moreover, in "a demonstration", offer of a list of the complaint list for a demonstration serves as the contents of a demand.

[0059] << -- 2nd example>> -- next, the 2nd example of this invention is explained according to the sequence chart of above-mentioned drawing 9 . This example Let an operator's access levels be three level, a "privilege", general [ "general" ], and "a demonstration."

[0060] The operator ID of the HMI terminal 100 is set to "34567890", and a password is set to "CZ4DDA5E." The contents shown in drawing 6 shall be beforehand registered into the operator managed table 201 of common PF/DB200.
(1) The operator-ID input section 101 acquires the operator ID and password which are entered by the operator concerned (step 201).

[0061] (2) The access level judging section 102 holds the operator ID (34567890) and password (CZ4DDA5E) which were acquired from the operator-ID input section 101 in work-piece memory (step 202).
(3) The access level judging section 102 transmits an operator ID (34567890) to the operator managed table 201 of common PF/DB200, in order to judge the access level for every operator (step 203).

[0062] (4) In the operator managed table 201, the operator ID (34567890) acquired from the access level judging section 102 extracts an operator's access level "a demonstration" (step 204).
(5) The operator managed table 201 transmits a password (CZ4DDA5E) and the extracted access level (demonstration) to the access level judging section 102 of the HMI terminal 100 (step 205).

[0063] (6) The access level judging section 102 of the HMI terminal 100 attests using the password (CZ4DDA5E) currently held in work-piece memory, and the password (CZ4DDA5E) acquired from common PF/DB200.
(7) In this authentication, since both passwords are in agreement, attest with the right. Therefore, an operator ID (34567890) and an access level (demonstration) are transmitted to a demand and the

mask-processing section 204 of common PF/DB200 (step 207).

[0064] (8) A demand and the mask-processing section 204 of common PF/DB200 hold the operator ID (34567890) and access level (demonstration) which were acquired in work-piece memory (step 208).

(9) Here, when the following demands are inputted from an operator, it is "a list of all actual customers' conditions of contract."
The output section 104 transmits the contents of a demand concerned to a demand and the mask-processing section 204 of common PF/DB200 a demand input / as a result of the HMI terminal 100 (step 209).

[0065] (10) As shown in drawing 11 , a demand and the mask-processing section 204 of common PF/DB200 carry out mask processing to the contents of a demand, and publishes the demand of finishing [ the following mask processing ] in the data-hold section 203 (step 210).

[0066] "A list of the conditions of contract of the customer for a demonstration"
(11) A demand and the mask-processing section 204 acquire the data corresponding to the demand "a list of the conditions of contract of the customer for a demonstration" concerned from the data-hold section 203, and transmits them to the demand analysis section 103 of the HMI terminal 100 (step 211).

[0067] (12) The demand analysis section 103 of the HMI terminal 100 transmits the acquired data to the output section 104 as a result of a demand input. Thereby, the output section 104 displays the information on the contents of a demand concerned on the HMI terminal 100 as a result of a demand input. In addition, in the above-mentioned example, although an operator's access level explained the example of a "demonstration", when an operator's access level is a "privilege", mask processing is not performed but offer of a list all actual customers' conditions of contract serves as the contents of a demand. Moreover, offer of a list a customer's conditions of contract which its post to which an operator belongs takes charge of in a "general" case serves as the contents of a demand.

[0068] << -- 3rd example>> -- next, an example in case the contents of a demand are write requests is explained as the 3rd example. The concrete contents of a demand are explained as "eliminating all cancellation persons' information." In this case, the access level which can be set is made "general", the operator ID of the HMI terminal 100 is set to "23456789", and a password is set to "BY3CCZ4D." The contents shown in drawing 6 shall be beforehand registered into the operator managed table 201 of common PF/DB200.

[0069] Mask processing shall be performed in accordance with the 2nd above-mentioned example. That is, mask processing is performed by the common PF/DB200 side. Therefore, it explains along with the sequence chart shown in above-mentioned drawing 9 .
(1) The operator-ID input section 101 acquires the operator ID (23456789) and password (BY3CCZ4D) which are entered by the operator concerned (step 201).

[0070] (2) The access level judging section 102 holds the operator ID (23456789) and password (BY3CCZ4D) which were acquired from the operator-ID input section 101 in work-piece memory (step 202).
(3) The access level judging section 102 transmits an operator ID (23456789) to the operator managed table 201 of common PF/DB200, in order to judge the access level for every operator (step 203).

[0071] (4) In the operator managed table 201 shown in drawing 6 , use as a key the operator ID (23456789) acquired from the access level judging section 102, and extract the access level "general" of the operator concerned (step 204).
(5) The operator managed table 201 transmits a password (BY3CCZ4D) and the extracted access level (general) to the access level judging section 102 of the HMI terminal 100 (step 205).

[0072] (6) The access level judging section 102 of the HMI terminal 100 attests using the password (BY3CCZ4D) currently held in work-piece memory, and the password (BY3CCZ4D) acquired from common PF/DB200.
(7) In this authentication, since both passwords are in agreement, attest with the right. Therefore, an operator ID (23456789) and an access level (general) are transmitted to a demand and the

mask-processing section 204 of common PF/DB200 (step 207).

[0073] (8) A demand and the mask-processing section 204 of common PF/DB200 hold the operator ID (23456789) and access level (general) which were acquired in work-piece memory (step 208).
(9) Here, if the following demands are inputted from an operator, "all cancellation persons' information will be eliminated."
The output section 104 transmits the contents of a demand concerned to a demand and the mask-processing section 204 of common PF/DB200 a demand input / as a result of the HMI terminal 100 (step 209).

[0074] (10) As shown in drawing 12 , a demand and the mask-processing section 204 of common PF/DB200 carry out mask processing to the contents of a demand, and publishes the demand of finishing [ the following mask processing ] in the data-hold section 203 (step 210).
"Only a cancellation person's information which the operator took charge of is eliminated."
At this time, a demand and the mask-processing section 204 prepare the field for modification hysteresis for the data-hold section 203, and writes operator ID (23456789), processing time concerned, and cancellation person information of the operator concerned in the field concerned.

[0075] (11) To the contractor file which the data-hold section 203 holds, a demand and the mask-processing section 204 perform the update process corresponding to the demand "only a cancellation person's information which the operator took charge of is eliminated" concerned, and transmits an updating result to the demand analysis section 103 of the HMI terminal 100 (step 211).

[0076] (12) The demand analysis section 103 of the HMI terminal 100 transmits an updating result to the output section 104 as a result of a demand input. Thereby, the output section 104 displays the updating result concerned on the HMI terminal 100 as a result of a demand input.
Thus, although the processing in the above-mentioned second half of (10) is unnecessary when the contents of a demand refer to information, in performing the write request which updates information for an injection / correction / deletion, it carries out the processing which stores in the data-hold section 203 the information equivalent to the contents of a demand over which the mask was covered so that they may hold using as modification hysteresis an operator's information and modification recording information which are a modification person.

[0077] In the 3rd above-mentioned example, although explained in accordance with the 2nd above-mentioned example, when there is a write request like the 1st example according to the demand by which mask processing was carried out in the mask-processing section 105 of the HMI terminal 100 when mask processing was performed by the HMI terminal 100 side, processing which stores modification information in the data-hold section 203 in the demand calculation section 202 of common PF/DB200 is performed.

[0078] As mentioned above, according to each above-mentioned example, in the HMI terminal 100, the mask of the operation function which can be used can be carried out according to an operator's access level. Moreover, since an operator's access level information is managed by common PF/DB200, it is controllable not to be accessed carelessly.

[0079] In addition, modification and application are variously possible for this invention within a patent claim, without being limited to the above-mentioned example.

[0080]
[Effect of the Invention] As mentioned above, according to this invention, at each HMI terminal, the mask of the limit of the operation function which can be used according to an operator's access level can be carried out, and it can be performed. Moreover, the access level information of the operator in consideration of a maintenance and security is manageable.

[Translation done.]

## * NOTICES *

## CLAIMS

[Claim(s)]
[Claim 1] The masking of the use function of the HMI terminal by the access level characterized by to arrange an operator's access level information to a platform side for every operator, and for an operator to perform mask processing of the function of said HMI terminal with reference to said access level information based on said access level information in the masking of the use function of the HMI terminal by the access level for restricting the operation function by an operator's access level in operation system for every operator at the time of the operation of a HMI terminal.
[Claim 2] Masking of the use function of the HMI terminal by the access level according to claim 1 which performs mask processing of the function of said HMI terminal by said HMI terminal side based on the access level information acquired from said platform side to the demand inputted by the operator.
[Claim 3] When an operator logs in to a HMI terminal, the operator ID and password which were entered are incorporated. The access level corresponding to a password and said operator ID is acquired from said platform side. When said entered password is attested using the password acquired from said platform side and an operator performs said HMI terminal handling Mask processing is performed based on reception and said access level, and the contents of a demand are transmitted to said platform side. In said platform side Masking of the use function of the HMI terminal by the access level according to claim 2 which performs processing to the contents of a demand by which mask processing was carried out, and transmits the result to said HMI terminal.
[Claim 4] Masking of the use function of the HMI terminal by the access level according to claim 1 which performs mask processing of the function of said HMI terminal by said platform side based on the access level information currently held at said platform side to the demand inputted by the operator.
[Claim 5] When an operator logs in to a HMI terminal, the operator ID and password which were entered are incorporated. The access level corresponding to a password and said operator ID is acquired from said platform side. Said entered password is attested using the password acquired from said platform side. When an access level is judged, said operator ID and said access level are transmitted to said platform and an operator performs said HMI terminal handling Transmit the contents of a demand to reception and said platform, and it sets to said platform side. Masking of the use function of the HMI terminal by the access level according to claim 4 which performs mask processing according to said access level to said contents of a demand, performs processing to the contents of a demand over which said mask was covered, and transmits the result to said HMI terminal.
[Claim 6] Masking of the use function of the HMI terminal by the access level according to claim 3 or 5 which holds the hysteresis information about an operator ID and this write request when said contents of a demand are write requests.
[Claim 7] It is the mask system of the use function of the HMI terminal by the access level for restricting the operation function by an operator's access level in operation system. The platform which holds an operator's access level information for every operator, Said access level information is referred to at the time of the operation of the HMI terminal from an operator. The mask system of

the use function of the HMI terminal by the access level characterized by having the HMI terminal which performs mask processing of the function of said HMI terminal based on said access level information for every operator.

[Claim 8] The operator ID into which said HMI terminal was inputted when an operator logged in to a HMI terminal, and an operator-ID acquisition means to acquire a password, The authentication means which attests said operator ID using the entered password and the password managed by said platform side, An access level judging means to determine said operator's access level based on the access level information acquired from said platform side, The mask means which carries out the mask of this demand according to the access level determined by said access level judging means about the demand from said operator, The demand by which mask processing was carried out with said mask means is transmitted to said platform side. The information corresponding to the demand acquired from this platform is acquired, and it has an information presentation means to show said operator. Said platform An access level maintenance means to hold the access level information for every operator, The mask system of the use function of the HMI terminal by the access level according to claim 7 which has an information offer means to perform processing corresponding to this demand based on said demand which was acquired from said HMI terminal, and by which mask processing was carried out, and to provide said HMI terminal with the result.

[Claim 9] Said platform has a data-hold means including a data-hold means to hold the hysteresis information about an operator ID and a write request according to claim 8, when the data for offering the data corresponding to the demand from said HMI terminal and said demand are write requests.

[Claim 10] It is the mask system of the use function of the HMI terminal by the access level for restricting the operation function by an operator's access level in operation system. The platform which holds an operator's access level information for every operator, and performs mask processing of the function of said HMI terminal to the demand from said HMI terminal based on this access level information, The mask system of the use function of the HMI terminal by the access level characterized by having the HMI terminal which performs authentication of an operator ID and a password, transmits the demand from an operator to said platform, and acquires the information corresponding to a demand from this platform.

[Claim 11] The operator ID into which said HMI terminal was inputted when an operator logged in to a HMI terminal, and an operator-ID acquisition means to acquire a password, The authentication means which attests said operator ID using the entered password and the password managed by said platform side, An access level judging means to determine said operator's access level based on the access level information acquired from said platform side, Transmit the demand from said operator to said platform side, and the information corresponding to this demand is acquired from said platform. It has an information presentation means to show this operator. Said platform An access level maintenance means to hold the access level for every operator, A demand acquisition means to acquire said demand from said HMI terminal, and the mask means which carries out the mask of this demand acquired with said demand acquisition means according to the access level determined by said access level judging means of said HMI terminal, The mask system of the use function of the HMI terminal by the access level according to claim 10 which has an information offer means to perform processing corresponding to the demand by which mask processing was carried out with said mask means, and to provide said HMI terminal with the result.

[Claim 12] Said platform is the mask system of the use function of the HMI terminal by the access level according to claim 11 which has a data-hold means to hold the hysteresis information about an operator ID and a write request when the data for offering the data corresponding to the demand from said HMI terminal and said demand are write requests.

[Translation done.]

\* NOTICES \*

DRAWINGS

[Drawing 6]

本発明のオペレータ管理テーブルの構成例を示す図

2 1 0

| オペレータ I D | パスワード | アクセスレベル |
|---|---|---|
| 1 2 3 4 5 6 7 8 | A X 2 B B Y 3 C | 特権用 |
| 2 3 4 5 6 7 8 9 | B Y 3 C C Z 4 D | 一般用 |
| 3 4 5 6 7 8 9 0 | C Z 4 D D A 5 E | デモ用 |
| ⋮ | | |

[Drawing 10]

本発明の第1の実施例のアクセスレベルとマスクをかけた要求内容の例を示す図

| オペレータのアクセスレベル | マスクをかけた要求内容 |
|---|---|
| 特 権 | 実際の苦情の全リストの一覧<br>（オペレータの要求内容のまま） |
| 一 般 | オペレータの担当する苦情の<br>リストの一覧 |
| デ モ | デモ用の苦情のリストの一覧 |
| ⋮ | |

[Drawing 1]

本発明の第１の原理を説明するための図
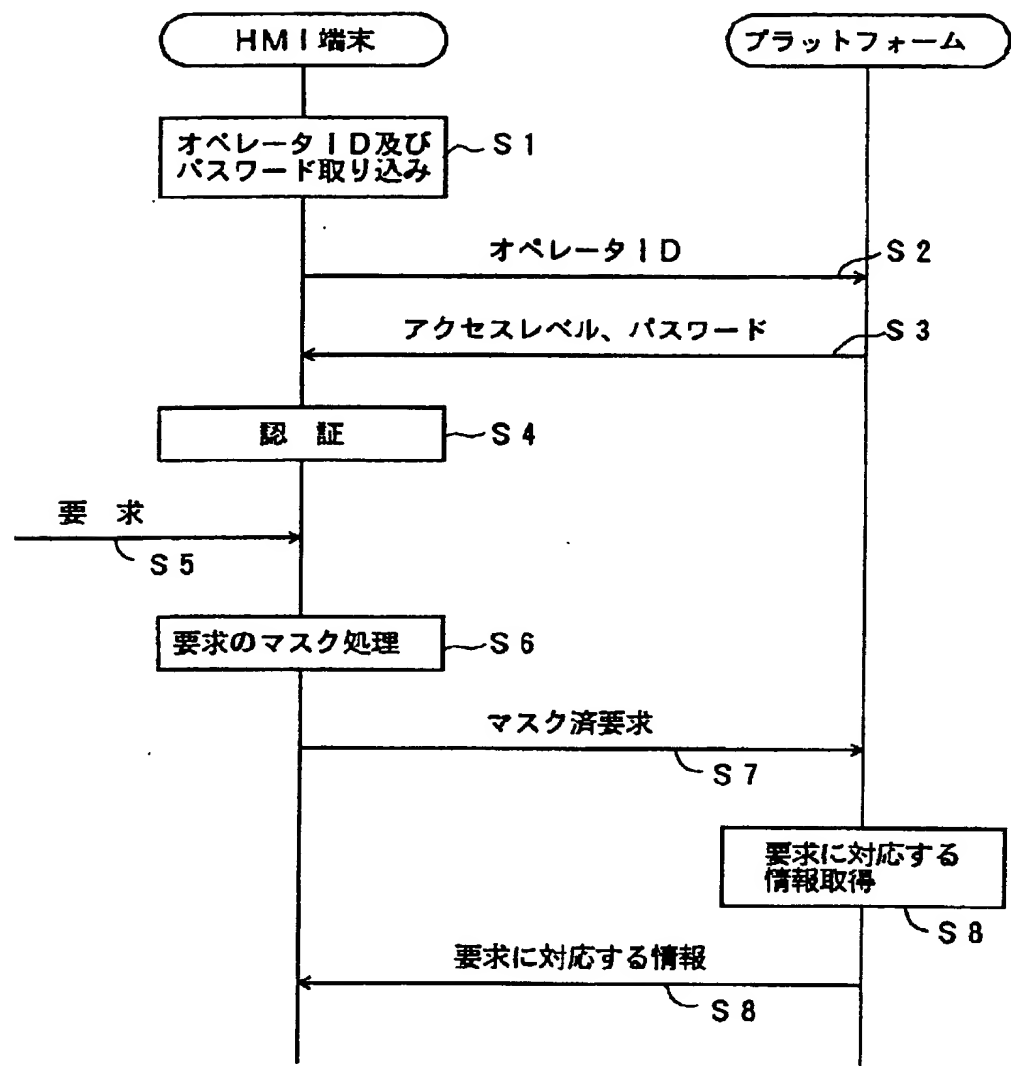


[Drawing 12]

本発明の第３の実施例のアクセスレベルと
マスタをかけた要求内容の例を示す図

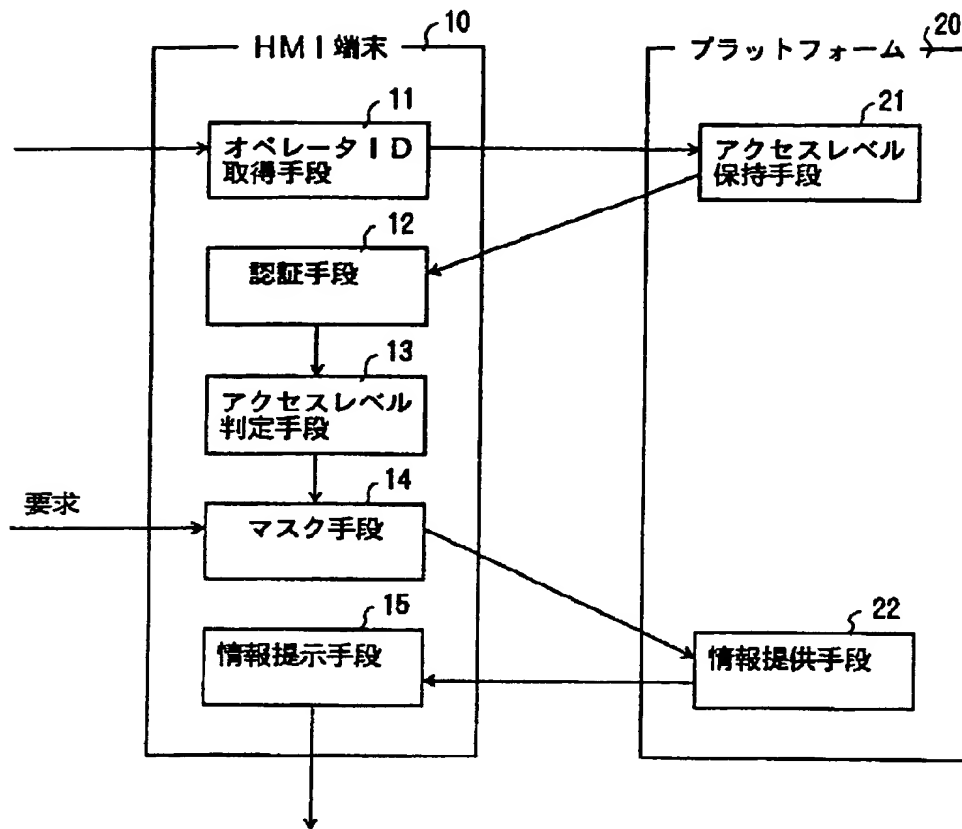| オペレータのアクセスレベル | マスクをかけた要求内容 |
|---|---|
| 特　権 | 全ての解約者の情報を消去する |
| 一　般 | オペレータが担当した解約者の情報のみを消去する |
| デ　モ | デモ用の解約者の情報を消去する |

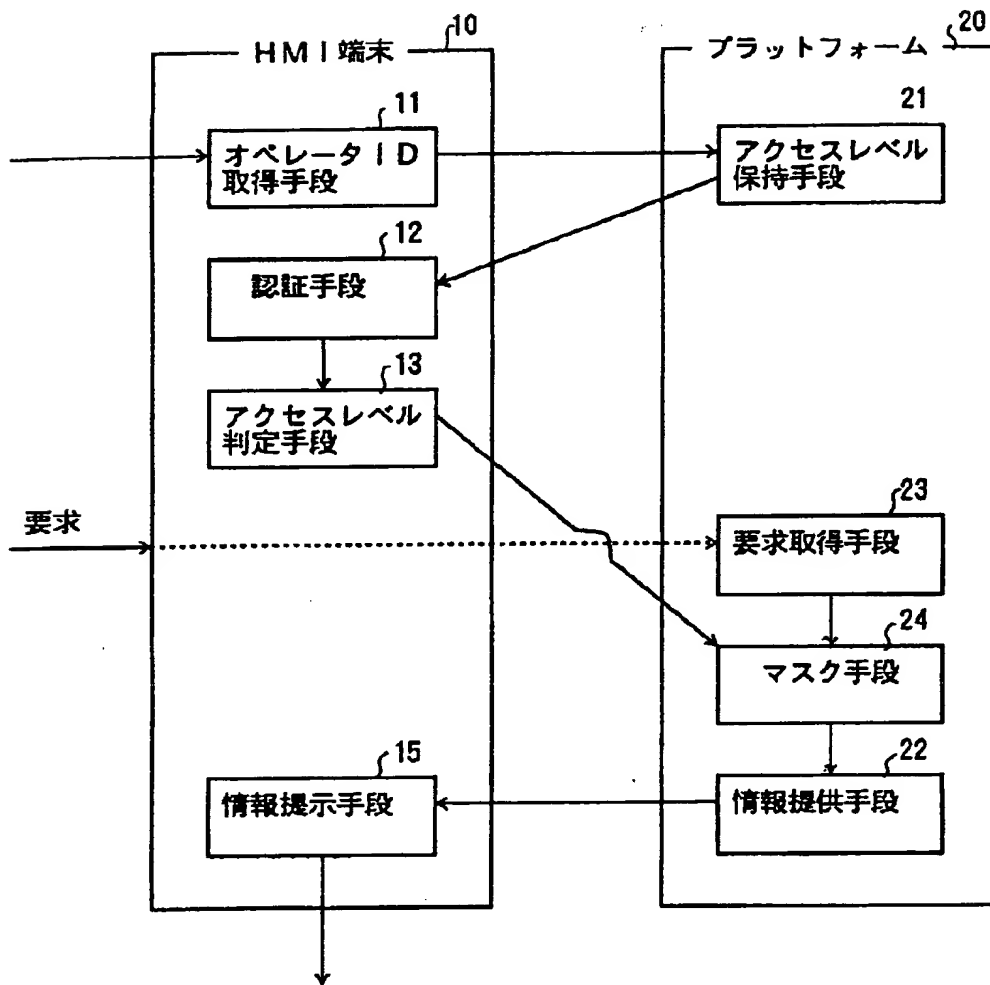[Drawing 2]

本発明の第2の原理を説明するための図
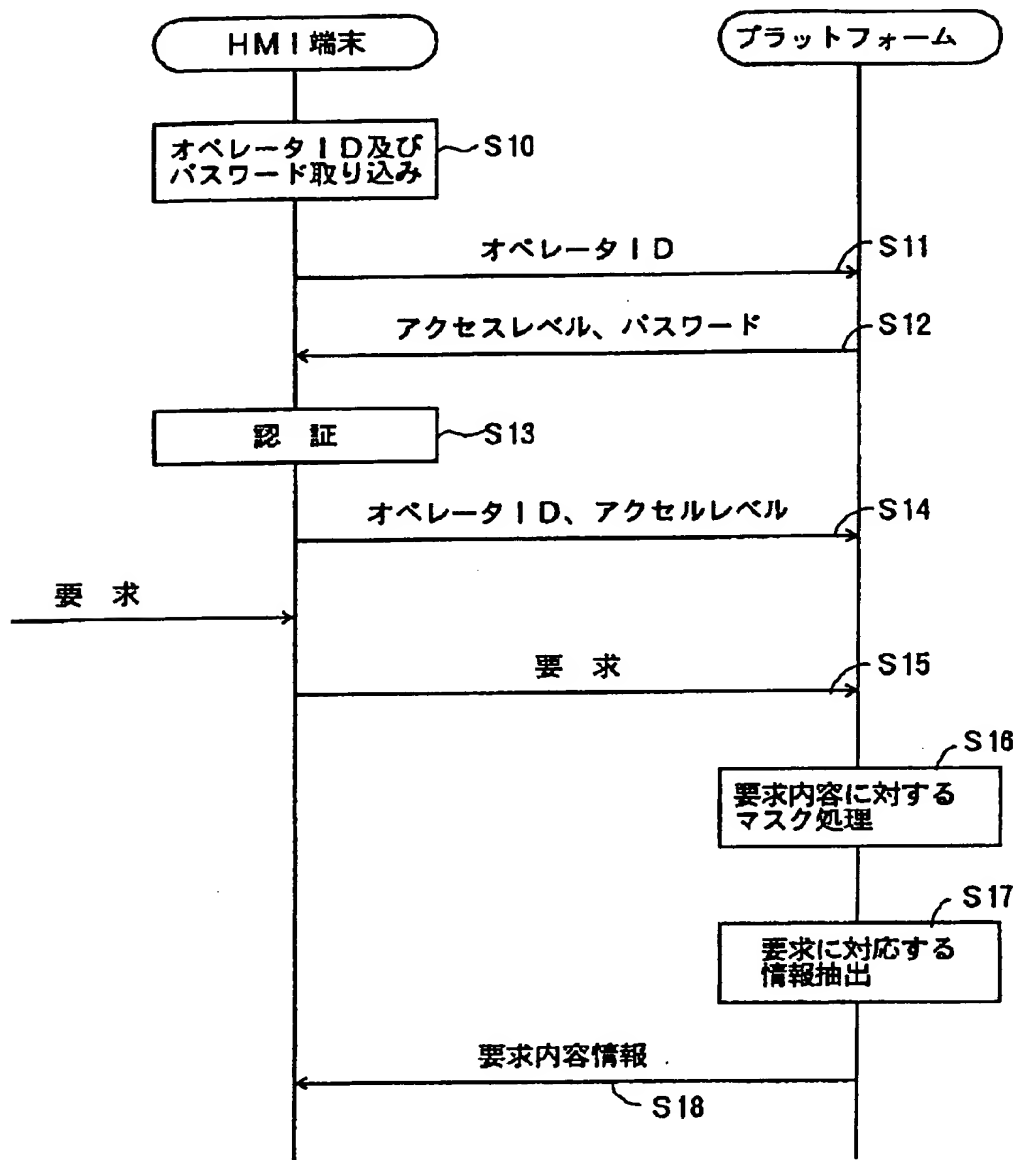


[Drawing 3]

本発明の第1の原理構成図



[Drawing 11]

本発明の第2の実施例のアクセスレベルと
マスクをかけた要求内容の例を示す図

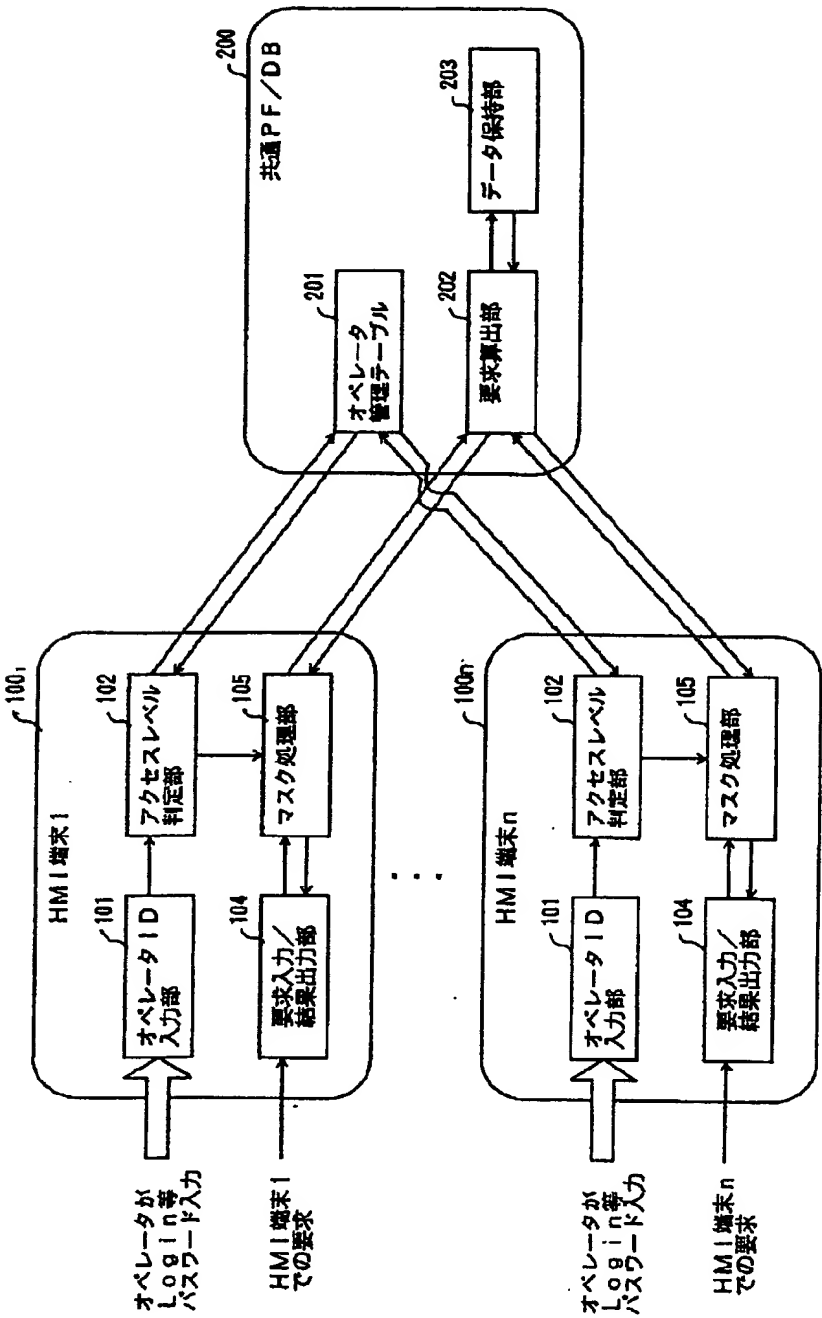| オペレータのアクセスレベル | マスクをかけた要求内容 |
|---|---|
| 特　権 | 実際の全顧客の契約条件の一覧<br>（オペレータの要求内容のまま） |
| 一　般 | オペレータの所属する部署の<br>担当する顧客の契約条件の一覧 |
| デ　モ | デモ用の顧客の契約条件の一覧 |
| ⋮ | |

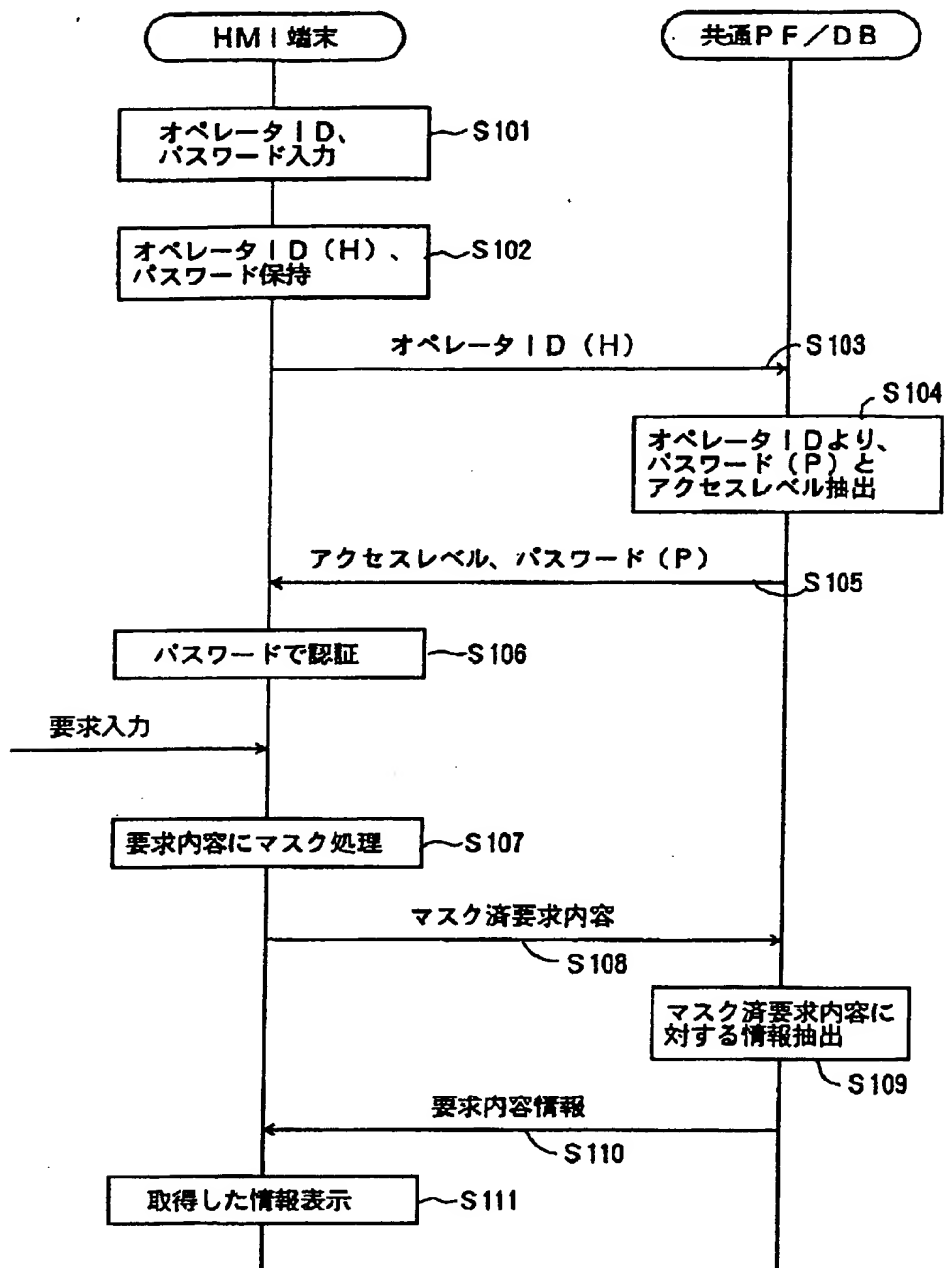[Drawing 4]

本発明の第2の原理構成図



[Drawing 5]

**本発明の第1のアクセスレベルによるHMI端末の
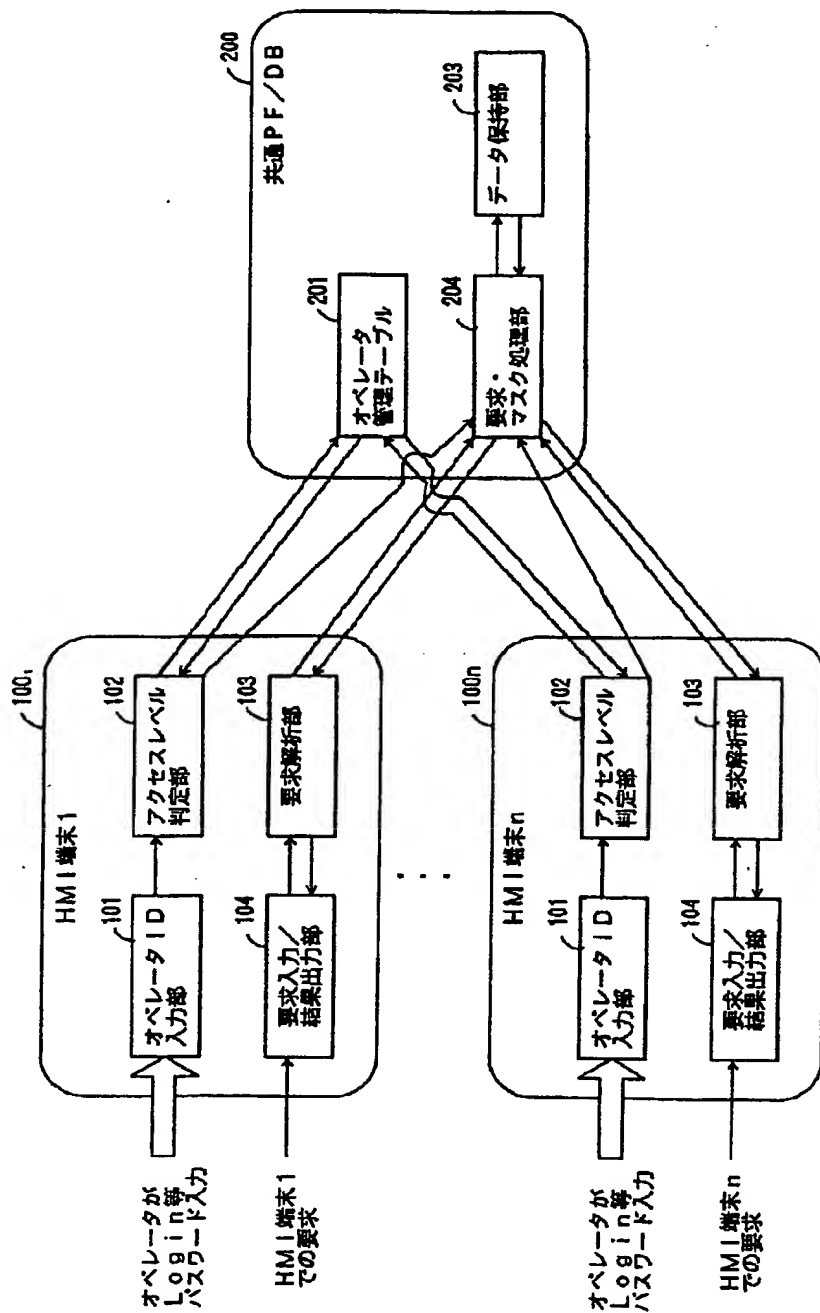利用機能のマスクシステムの構成図**



[Drawing 7]
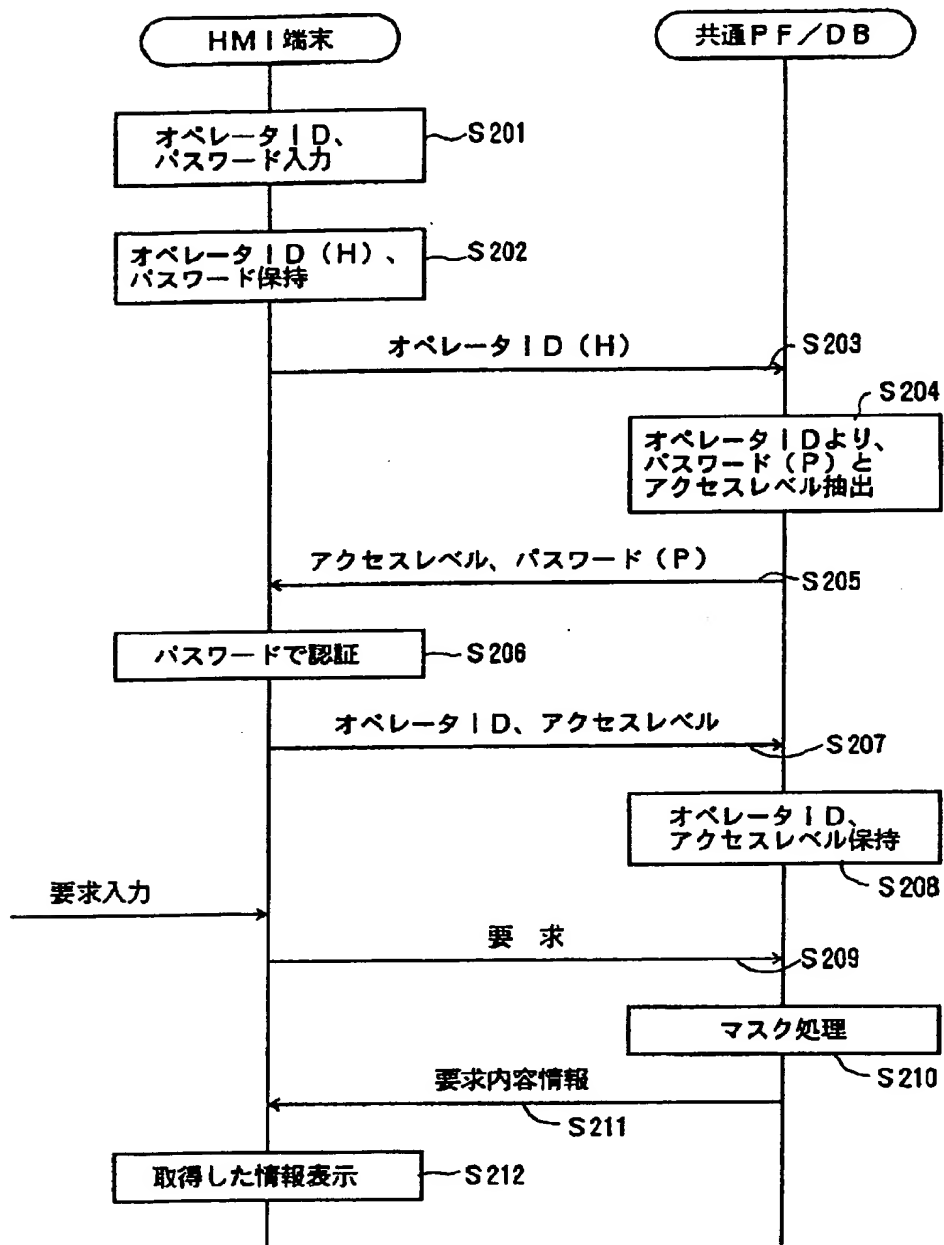
本発明の第1のアクセスレベルによるHMI端末の利用機能の
マスクシステムの動作を示すシーケンスチャート



[Drawing 8]

本発明の第2のアクセスレベルによるHMI端末の
利用機能のマスクシステムの構成図



[Drawing 9]

本発明の第2のアクセスレベルによるHMI端末の利用機能の
マスクシステムの動作を示すシーケンスチャート

| HMI端末 | | 共通PF／DB |
|---|---|---|

オペレータID、
パスワード入力 — S201

オペレータID（H）、
パスワード保持 — S202

オペレータID（H） — S203

S204
オペレータIDより、
パスワード（P）と
アクセスレベル抽出

アクセスレベル、パスワード（P） — S205

パスワードで認証 — S206

オペレータID、アクセスレベル — S207

オペレータID、
アクセスレベル保持
S208

要求入力

要求 — S209

マスク処理
S210

要求内容情報
S211

取得した情報表示 — S212

[Translation done.]